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## **The processing of morphologically complex words in Italian L2**

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The present research aims at investigating the processing of morphologically complex words in L2 Italian and, therefore, focuses on the interface between the morphological component and the lexicon in the specific setting of Second Language Acquisition.

In the last decades, a certain amount of research has been carried out in describing the building and development of the mental lexicon in the second language (Aitchinson 1987, Singleton 1999, Nation 2001) and in studying the organization of the bilingual lexicon (de Groot 1992, Paradis 2004, Pavlenko 2009).

On the other hand, the interest for lexical morphology has been scarce so far in SLA, because of theoretical and methodological issues. However, interesting aspects about the development of the affix knowledge have been discussed by Lowie 1998, 2000, 2005 (on Dutch learners of L2 English), Lardiere 2006 (a Chinese speaker of Mandarin learning L2 English), Petrush 2008 (English learner of L2 French), Mochizuki 1998 and Mochizuki /Aizawa 2000 (Japanese learners of L2 English).

More recently, psycholinguistic studies have provided a significant contribution to determine learners' sensitivity to word structure at different levels of L2 competence. In a masked-prime experiment, Silva / Clahsen 2008 consider the processing of deadjectival nominalizations with *-ness* (i.e. *kindness*) and *-ity* (i.e. *hostility*) in adult native speakers of English and in two different groups of advanced adult learners of L2 English, Chinese and German native speakers. Results seem to reveal some differences between native and non-native processing of derivational morphology, suggesting that adult L2 learners are less sensitive to morphological structure than native speakers and rely more on lexical storage than on morphological parsing during processing.

Silva/ Clahsen 2008 has been replicated, with some slight modifications, by Rehak/ Juffs 2011 with advanced/proficient Spanish and Mandarin Chinese learners of L2 English. Their results indicate a lack of full priming effects for the derivational suffix *-ness* for both groups. With *-ity*, on the contrary, the authors observe different mean reaction times for the two groups, with the native Spanish performing more like the English speakers than the Mandarin Chinese speakers. According to the authors, this data suggests that L1 Spanish learners transfer morphological processing from their native language while processing the English words primed with *-ity*, because of the (formal and semantic) similarity with the Spanish suffix *-idad*.

Now, hypothesis on non-native processing need to be verified with different L2 and possibly also with a wider range of suffixes. In this perspective, we carried out a first psycholinguistic experiment on L2 Italian. Using a masked priming paradigm (Forster and Davis, 1984) associated with the lexical decision task, we investigated the processing of quality name in *-ità* and in *-ezza* having a high (HF) and low surface frequency (LF) (HF: *velocità*, *curiosità*, *serenità* / LF: *enormità*, *immensità*, *brevità*; HF: *sicurezza*, *bellezza* / LF: *contentezza*, *grossezza*, *magrezza*). We considered items

whose bases have comparable frequency; frequency has been verified on the Colfis database.

Only semantically and formally transparent forms have been selected. Each target was preceded by 4 types of primes (identical, morphologically related – i.e., test-, orthographically related and unrelated). Primes were of 3 or 4 syllables and matched in surface frequency. Finally, nonwords targets constructed according the phonotactic rules of Italian, were included in the Experiments for the purposes of the lexical decision task. Examples of stimuli pairs are presented below:

#### Word targets

(i)	Identity	<i>vero</i> > <i>vero</i>	<i>sicuro</i> > <i>sicuro</i>
(ii)	Test	<i>verità</i> > <i>vero</i>	<i>sicurezza</i> > <i>sicuro</i>
(iii)	Orthographic	<i>verme</i> > <i>vero</i>	<i>sicario</i> > <i>sicuro</i>
(iv)	Unrelated	<i>edificio</i> > <i>vero</i>	<i>ragazza</i> > <i>sicuro</i>

#### Nonword targets

(i)	Identity	<i>dalce</i> > <i>dalce</i>	<i>pesmo</i> > <i>pesmo</i>
(ii)	Test	<i>dalcità</i> > <i>dalce</i>	<i>pesmezza</i> > <i>pesmo</i>
(iii)	Orthographic	<i>delcio</i> > <i>dalce</i>	<i>pesio</i> > <i>pesmo</i>
(iv)	Unrelated	<i>bisma</i> > <i>dalce</i>	<i>strodo</i> > <i>pesmo</i>

#### Participants

22 Italian native speakers (mean age: 25,39) and 22 learners of Italian with different L1 (see table 1) from the University of Verona took part in the Experiments.

**Table 1: L2 Italian learners**

Code	L1	Other L2	Time in Italy	Length of IT L2 learning
AP01	Russian	-	3 years	1 anno
AP02	Ukrainian	Russian, English	2 years	2 years
AP03	English	French, Spanish	8 months	3 years
AP04	English	Japanese	7 months	4 years
AP05	English	French, Spanish	3 months	2 years
AP06	Hungarian	English	7 months	1,5 years
AP07	Spanish	English, Finnish	1 year	2 weeks
AP08	German	Latin, Greek, English	3 months	2,5 years
AP09	Russian	-	4 years	4 years
AP10	German	English, Russian, French, Spanish	8 months	2 years
AP11	Hungarian	German, English	6 months	2 years
AP12	English	French, Spanish	7 months	2,5 years
AP13	Arabic	French, English	1,7 years	2,7 years
AP14	Spanish	English	9 years	-
AP15	Tartar, Russian	English, German, Uzbekian	5 years	12 years
AP16	Arabic	English, French	3,5 years	2 months
AP17	Albanian	English	9 years	-
AP18	Czech	Slovakian, German, Russian	20 years	20 years
AP19	Spanish	English	5 years	-
AP20	Spanish	French, English	1,5 years	-
AP21	French	English	1 year	5 years

AP22	Chinese	English, German	4,5 years	4,5 years
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In order to verify that the lexical items of the experiment were part of the lexical competence of the learners, a lexical test has been proposed after the experiment (table 2). Morphological effects, as a matter of fact, take place only if the speakers have a certain familiarity with the lexical items investigated.

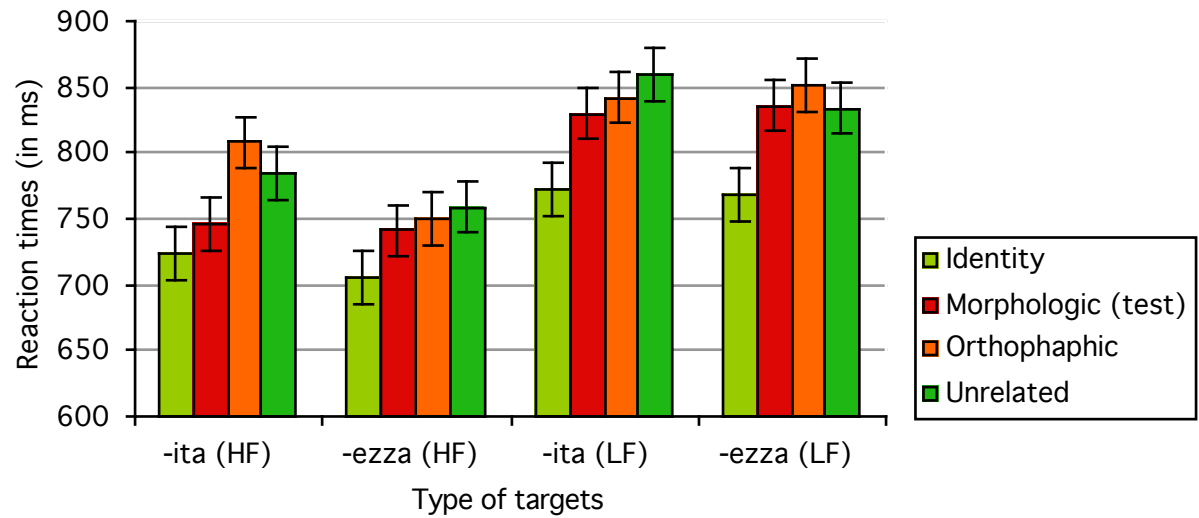
**Table 2: Lexical test**

Che cosa significano le seguenti parole? [what do the following words mean?]	
Veloce	– Rapido
	– Pesante
	– Ruvido
	– (non so)
Felice	– Profumato
	– Contento
	– Lento
	– (non so)

## Results

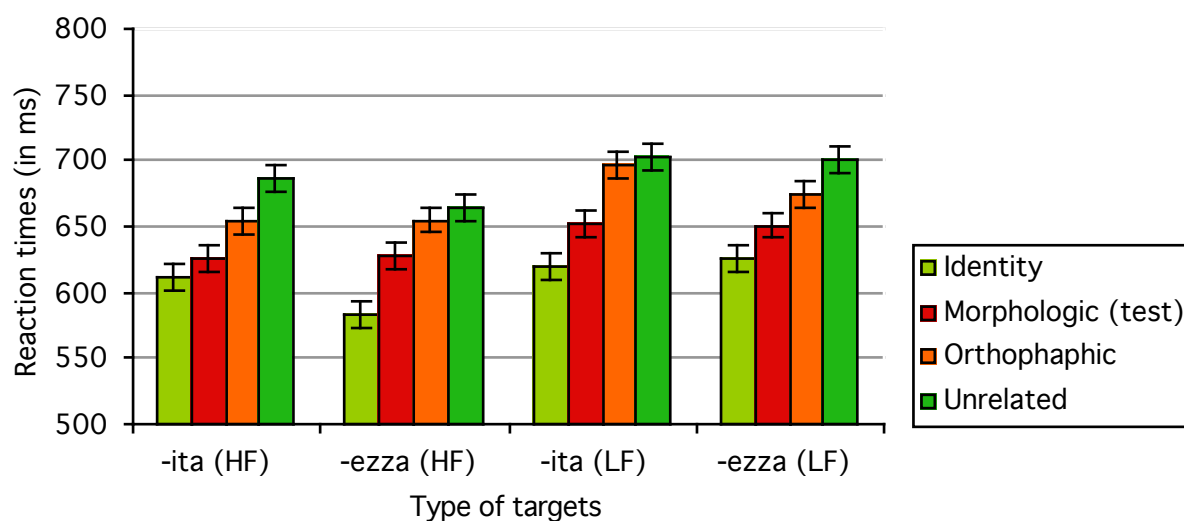
Mean reaction times and percentage of errors were recorded in the Experiments. ANOVA analyses were performed on these two dependent variables according to three main factors: Type of primes (Identical, test, orthographic, unrelated), type of suffix (*-ita* and *-ezza*) and type of prime frequency (High surface frequency vs. Low surface frequency targets). These results for learners and native speakers of Italian are presented in Figures 1 and 2

Figure 1: Learners of Italian



For learners, the two main factors type of target frequency and type of prime were significant ( $F(1,18) = 33.67$ ,  $p < .0001$  and  $F(3,54) = 13.36$ ,  $p < .0001$ , respectively). The suffix type factor did not reach significance ( $F(1,18) = 1.92$ ,  $p > .10$ ) but interacts with target frequency ( $F(1,18) = 4.69$ ,  $p < .05$ ). Planned comparisons revealed indeed a priming effect of morphologically related primes ending in *-ita* with a HF on target processing that differed significantly from both the orthographic and unrelated control condition.

Figure 2: Native speakers



For native speakers, the effects of three main factors were significant (type of suffix:  $F(1,18) = 5.91$ ,  $p < .025$ ; Type of prime frequency:  $F(1,18) = 20.59$ ,  $p < .001$ ; Type of prime:  $F(3,54) = 9.45$ ,  $p < .0001$ ). As usually found through the literature, morphological related primes facilitated target processing and these effects differed from orthographic controls (all  $p_s < .05$ ).

Taken together, these results show significant morphologically priming effects for native speakers that cannot be attributed to the formal similarity of prime-target pairs but genuinely to their morphological relationships. For learners, our results reveal that morphological priming effects can emerge for certain type of words those ending with the suffix *-ita* and having a high surface frequency in Italian. Unlike previous research, our data seems to indicate that morphology does in deed play a role in processing L2 Italian, at least for very frequent words.

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